



Mr. Gary Miller
Remedial Project Manager
United States Environmental Protection Agency
1445 Ross Avenue
Suite 1200
Dallas, Texas 75202

Re: San Jacinto River Waste Pits Fate and Transport Model Results

Dear Mr. Miller:

This letter comments on the hydrodynamic and sediment transport modeling results that were provided in the *Draft Feasibility Study Appendix A: Chemical Fate and Transport Modeling Report* (Study) for the San Jacinto River Waste Pits Superfund Site. The Trustees have reviewed the data from the Study, as presented by the Potentially Responsible Party (PRP), and are concerned that the full range of risk associated with flooding events is not fully documented or evaluated. The Trustees consider the threat from flooding events to the containment of contaminants to be significant and real. Our comments regarding the Study are presented below.

Scour Depth

The Study calculates that during a 100-year flood event the scour depths within the EPA's Preliminary Site Perimeter would average -04.5 centimeters (cm), with a maximum scour depth of -29.0 cm. However, historical flood data from the October 1994 100-year event that occurred on the San Jacinto River shows major soil erosion in the floodplain and the river channel. According to the National Transportation Safety Board Report, *Evaluation of Pipeline Failures during Flooding and of Spill Response Actions, San Jacinto River near Houston, Texas, October 1994*, issued in September 1996, the riverbed in an area just south of the San Jacinto River Waste Pits experienced 10-12 feet of scour. These scour depths recorded during the 1994 flood are approximately 100 times greater than those predicted in the PRP's model.

The use of the 100-year event as a benchmark

The use of a 100-year event for analysis is appropriate. However, there are two other analyses that should be undertaken to support the Study. An analysis with a 500-year event is not unreasonable given changes in weather patterns that have been experienced across the Nation as our climate changes. Extremes in precipitation rates are expected to occur more frequently¹. Additionally, an analysis of the consequences of catastrophic failure should be incorporated into the study in order to provide the basis for remedial alternatives and to fully assess risks to the public.

The predicted depths greatly understate the potential for sediment transport during a 100-year or larger flood. The EPA directly states in its document *Guidance for In-Situ Subaqueous Capping of Contaminated Substances: Appendix A: Armor Layer Design* that "less predictable forces" such as high-flow flood events, are not evaluated on in-situ capping (page A-1). The Trustees recommends that designers of in-situ caps consider the significance of such forces and their potential effects in the evaluation of the feasibility of the cap. The PRP has not adequately evaluated the potential effect of such an event at the San Jacinto River Waste Pits. A large-scale scour event, or complete failure of a remedial cap, could result in a significant and potentially catastrophic

¹Trenberth, KE (2011). Changes in precipitation with climate change. *Clim Res* 47:123-138

release of dioxins into Galveston Bay. As the EPA moves forward with remedial action, the Trustees recommend evaluating the environmental repercussions of such a dioxin release.

The Trustees appreciate the opportunity to provide input during the remediation phase of this project. If you have any questions or concerns, please contact me at 512.463.3954, or at chelsea.murphy@glo.texas.gov.

Sincerely,

A handwritten signature in dark ink, reading "Chelsea K. Murphy". The signature is fluid and cursive, with the first name "Chelsea" and last name "Murphy" clearly legible.

Chelsea K. Murphy
Texas General Land Office
Natural Resource Specialist
Oil Spill Prevention and Response Division
Natural Resource Damage Assessment Trustee Program

MSS/mss/ms

cc: Mr. Don Pitts, Texas Parks and Wildlife Department
Mr. Andy Tirpak, Texas Parks and Wildlife Department
Mr. Richard Seiler, Texas Commission on Environmental Quality
Ms. Jane Sarosdy, Texas General Land Office
Mr. Woody Woodrow, U.S. Fish and Wildlife Service
Mr. Chip Wood, U.S. Fish and Wildlife Service
Mr. Jamie Schubert, NOAA